A WORK PROJECT, PRESENTED AS PART OF THE REQUIREMENTS FOR THE AWARD OF A MASTER DEGREE IN MANAGEMENT FROM THE NOVA SCHOOL OF BUSINESS AND ECONOMICS

HOW FIRMS CAN ENCOURAGE MORE EFFICIENT CUSTOMER ADOPTION OF SELF-SERVICE TECHNOLOGIES

THE CASE OF EDP

KATHARINA ANNA KOBIA

STUDENT NUMBER **27424**

A PROJECT CARRIED OUT WITH THE SUPERVISION OF:

AFONSO REIS

JANUARY, 2018

Abstract

Self-service technologies are changing the way companies and customers interact with each other, with utility companies facing the increasing pressure of giving customers a satisfying digital experience. This work aims at providing a deeper insight into critical factors influencing EDP customers' adoption of the self-service channel EDP Online. Focus groups were conducted with users and nonusers of EDP Online to ultimately find answers on how EDP can encourage more customers to adapt to its self-service channel. Recommendations were derived from proposed improvements by both users and nonusers and have been elaborated further, with examples including gamification features, a rewards system, an online chat, the monitoring of energy usage, the customization of push notifications and personalized energy tips.

Keywords: SST adoption, EDP Online, Self-service Technologies, TAM, Diffusion of Innovations

Table of contents

1. Introduction

This work project was realized in the context of a partnership between EDP - Energias de Portugal and NOVA School of Business and Economics as part of the requirement for the MSc in Management.

Over the past years a growing digital divide has emerged in which consumers are requesting a digital experience that the utility industry so far has been unable to meet (Capgemini Consulting, 2013). Customers are demanding a profound revision of business processes, getting more and more used to personalized treatment, all-time availability, intuitive interfaces, no errors and global consistency (McKinsey & Company, 2014). Self-service technologies play an important factor in this environment, where companies are slowly replacing service staff and opening up new ways of delivering services with customers as active partners. Taking a closer look at EDP, the company is continuously trying to acquire new customers to use their self-service channel EDP Online. At the same time they have to cope with the problem that a considerate amount of users don't engage in staying and using the platform. Instead, customers choose to use other channels to get in touch with the company, like call centers or stores when needing help or providing their readings. Due to this, EDP incurs higher costs and lower customer satisfaction levels which result in long-term consequences for the company. Trying to grasp this downward trend, this work comes to the following research question: "How can EDP encourage more customers to adopt to its self-service channels?" In order to address this problem, focus groups with EDP customers – EDP Online users as well as nonusers – were carried out to derive potential recommendations for the company in the future.

1.1 EDP company overview and self-service channels

EDP – Energias de Portugal, SA is a Portuguese-based utility company headquartered in Lisbon and is the largest generator, distributor and supplier of electricity in Portugal with over

12,000 employees worldwide. The company was originally founded in 1976 as a state-owned public utility with the name Electricidade de Portugal. In 1994, EDP was formed and transformed into a state-controlled public company. EDP is engaged in the distribution and supply of gas while also being one of the biggest wind power operators in the Iberian Peninsula, US, Canada, Brazil, France, Belgium, Italy, Poland, Romania and Mexico.

Today, EDP operates through the three main operating divisions: Iberia, EDP Brasil and EDP Renovaveis. The latter focuses on power generation activity through renewable energy resources, with EDP´s overall energy supply now coming from over 65% renewable sources. EDP has around 9.8 million electricity and 1.5 million gas customers with revenues of 1.7 billion euros and a net profit of 56 million euros (MarketLine 2016, EDP Annual Report 2016). Currently, EDP holds several websites, with EDP Online (edponline.edp.pt) dedicated to customer self-service. EDP Comunidade is a community website and similar to a loyalty program together with different companies as a way to provide benefits to EDP customers through discounts or other products. Apart from EDP Online and Comunidade there is a website for each of EDP´s companies. The self-service website EDP Online has around 1.3 million registered users and an average of 200,000 monthly users. The website as well as the app EDP Online can be seen as alternative channels of communication to EDP´s contact center, stores and agents and aim at supporting customers to manage their electricity and gas contracts on their own. Both have a client area where customers can consult information related to their accounts and easily change contract information.

1.2 EDP Online

EDP Online's main functionalities are the access to invoices, the communication of readings and changing contract details, with a more detailed description of its self-service features as follows:

Self-service features of EDP Online app and website: Access and possibility to download invoices as PDF; Insert of meter readings; View of historical meter readings; View of consumption as graph; Search of past consumption; Access details of contract and possibility to change contract details: phone number, address, direct debit, email address, time period of invoices, tariff; Possibility to add contracts from other people e.g. family members to manage from one account; Possibility to report electricity breakdown at home; Access to EDP Comunidade.

Self-service features only available on EDP Online website: Enter into a new contract with EDP; Add services to existing contract; Access to frequently asked questions; Possibility to make information requests and complaints.

Customer Journey. In this context, it is also important to take a closer look at the customer journey on EDP Online that incorporates different stages from being a nonuser to the moment of registration until the last login. At the beginning, there is a normal customer of EDP that is not engaged with EDP Online and can therefore be described as a Nonuser. In order to become an Activated User, a customer needs to register either on the EDP Online website independently or through Express registration. The latter is used when a customer gets a new contract or changes details through an offline channel, then EDP automatically sends an E-mail to the already registered customer and a link to activate the account. When customers register through the self-service channel EDP Online, the activation rate (98%) is a lot higher than through Express registration (41%) - almost all users activate their account on the day they register. After the activation of the account, the customer enters EDP Online through its first login. A customer therefore becomes a Basic User when he logs in the first time, however a significant number of activated users never login. Basic users visit the platform with a minimal usage frequency. The next stage is the Frequent User who uses EDP Online as an alternative channel of communication with the company. Frequent users refer to the

number of people that do a login at least every 3 months and can comprise among other things of the usage of EDP Online by sending readings, check or download invoices or send information requests. In November 2017, the number of frequent users was approximated at around 450,000.

2. Literature Review

2.1 Self-service technologies (SSTs)

The idea of self-service options already started in the 1980s, where a trend of integrating the consumer into the production process was discovered (Toffler, 1980). It was the commercial development of the Word Wide Web and the IT revolution however that spurred the success and growth of SSTs and provided great opportunities for companies by introducing self-service technologies (Hilton and Hughes, 2012). Self-service technologies (SSTs) refer to "technological interfaces that enable customers to produce a service independent of direct service employee involvement" (Meuter et al., 2000, p.50). Such technology-based self-service channels replace or complement traditional face-to-face service encounter, with customers becoming "active participants" rather than a "passive audience" (Scherer et al. 2015, p. 178). Hence, consumers are becoming more and more involved in the service process that requires them to interact with a technology while creating the service outcome on their own. The interfaces of SSTs are essentially mobile phones, kiosks and the Internet and examples include "on-site" options such as automated teller machines (ATMs), ticket machines or touch-screens in department stores. "Off-site" options can comprise online banking, telephone banking, Internet shopping or Internet information search (Dabholkar and Bagozzi, 2000). Reasons for companies to introduce SSTs are diverse, but one of the most significant ones is to reduce costs. Especially with customer service apps, firms see an enormous saving potential for labor costs as technology solutions such as web-based services or interactive voice response systems are substituted for personal encounters. On the other

side, customers don´t care about cost savings of the company unless they benefit from it as well. When they realize that the main reason for the introduction of the SST was to save costs, a lot of times they resist using the SST, especially when they don't directly see the saving passed down to them (Bitner et al., 2002). Another reason for the introduction of an SST is to increase customer satisfaction and loyalty. When the customer sees the SST as in any way superior to the interpersonal experience, it can boost customer satisfaction. Frequently, customers also demand a self-service option and will switch to a competitor if the company doesn´t provide it. Some companies also try to reach new customer segments by introducing an SST. Creating a new channel means that new customer segments that might have been out of reach before can now be addressed. In particular, Web-based SSTs help firms to effectively expand their customer base as traditionally, customers came from specific geographic locations. Other reasons for organizations to introduce SSTs are a better coordination across outlets and channels, standardized service delivery, the handling of fluctuating demand, the provision of a more consistent service atmosphere and the SST as a revenue driver (Bitner, 2007). All these points however depend on the customer's willingness and ability to use the SST effectively, with the initial trial decision being the first step along that process (Hilton and Hughes, 2012).

2.2 Initial SST Trial Decision

One of the most important but at the same most difficult obstacles for companies is to get customers to try the SST for the first time. In literature, this barrier has been described as the "Initial SST trial decision" (Meuter et al., 2005). It usually involves a substantial behavior change where consumers have to adjust a deeply rooted pattern. When consumers use the self-service, they not only need to change their behavior, which in general people are hesitant to, but they turn into co-producers with a responsibility for the service outcome (2005). In their research, Bitner, Ostrom and Meuter (2002) worked together with a healthcare company

that was trying to convince customers to order prescription refills over the Internet and an IVR system instead of calling customer service. While testing a theoretical model that shows the decision process consumers go through when they try an SST for the first time, Bitner et al. (2002) posed the question: "Why do customers resist trying new SSTs?". The research concludes that whether a consumer adopts the SST relies upon critical fundamentals, with the most important question being: "Are customers even aware that the new alternative exists?" (Meuter et al. 2005, p. 103). The study showed that a lot of potential users were not even aware of the companies' SST. However, when consumers did know about the SST, their response to the question *"Do I fell positively inclined toward the SST?"* (2005, p. 103) will more likely show if they are going to try it. Research as well as prior work shows that customers with a negative attitude towards the SST are a lot less likely to ever try the SST. If the following three questions are answered positively by the customer, chances are higher they are going to try the SST. *"Do I perceive that I have the ability to use the new channel?"* (2005, p. 103) - In this context, ability can mean that the customer needs Internet or a smartphone but also the skills and physical ability to try it. The next question concerning role clarity is as follows: *"Do I understand my role and what do I need to do?"* (2005, p. 103). If customers don´t exactly know what to do and don´t grasp their role, they are a lot less like to try the SST. The key element in this whole process however is the customer´s motivation, resulting from the perceived benefit of using the SST. Hence, the question arises: *"Is there a benefit for changing my behavior - what´s in it for me?"* (2005, p. 103). As stated earlier, consumer's don´t like to change their usual behavior, unless there is something that persuades them to do so. Benefits can include time or cost savings, fun, information access or amongst other things a sense of control. The final question *"Will I consider using the SST again?"* (2005, p. 103) contains the fundamental objective of all companies, the repeated and regular

use of their SSTs. This can only be achieved when the customer has an experience that is enjoyable and contains benefits.

2.3 Related Theories of SST Adoption

2.3.1 Technology Acceptance Model (TAM)

Developed by Davis (1989), a frequently used approach to investigate the consumer´s adoption of a self-service technology is the Technology Acceptance Model (TAM). It is an extension of Ajzen and Fishbeins (1980) Theory of Reasoned Action (TRA) and explains how users come to accept a computer-based technology at their workplace. In TAM, the two key attributes perceived usefulness and perceived ease of use are said to influence the decision in adopting a technology. Davis defines the determinant perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p.320). The determinant ease of use is "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). The model could be verified by many other studies, with the TAM factors demonstrating e.g. a positive influence on the intention of consumers towards using ATMs, self-scanning or e-government services usage (Weijters et al. 2005, Curran and Meuter 2005, Carter and Bélanger 2005).

2.3.2 Diffusion of Innovations

Looking at another theory, some aspects of Roger´s (1983) Diffusion of Innovations can be used to explain the adoption of self-service technologies. The theory sees an SST as an innovation and factors influencing the adoption as attributes of innovations, which are the following: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability. Relative advantage is "the degree to which an innovation is perceived as better than the idea it supersedes" (Rogers 1983, p. 213). The term is usually communicated in

economic profitability where users are easier motivated in adopting the innovation when they experience financial gain. Compatibility is "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (1983, p. 223). The adoption rate therefore increases, when the SST is more compatible with the user's sociocultural values, beliefs and needs. Complexity relates to the difficulty of using and understanding an innovation. Trialability is "the degree to which an innovation may be experimented with on a limited basis" (1983, p. 231), meaning that ideas and the innovation will be adopted easier if they can be tried out first without any consequences. Eventually, the attribute observability says that consumers who can see the results of an innovation are also more likely to adopt it as these results can be then discussed with friends and family and therefore have a higher visibility (1983).

2.4 Factors influencing the Adoption of SST´s

Within numerous service settings, researchers have identified and explored many factors possibly influencing the consumer´s adoption of SST´s such as trust, flexibility, efficiency, speed of transaction, perceived control, enjoyment or perceived risk among others. Theories such as the Technology Acceptance Model (TAM) or the Diffusion of Innovations (DOI) laid the foundation for factors that have been derived from these models. Together with EDP, factors considered to be the most relevant for the company's customers were chosen to discuss them in more detail in the focus groups. They were categorized into two different clusters – Motivators and Barriers.

Motivators

Enjoyment. The factor "enjoyment" or "fun" seems to play a vital role in the adoption of SSTs. Hedonic aspects especially in combination with the two factors usefulness and ease of use from the TAM Model, positively impact consumer´s attitudes towards online shopping

(Perea y Monsuwé et al. 2004), retail self-scanning (Dabholkar and Bagozzi 2002) or in the research context of ordering fast food via touchscreens (Elliott and Speck 2005). Even in the banking context research of Curran and Meuter (2007), enjoyment is identified as the most influential factor and is said to have the power to persuade consumers to utilize the SST. *Convenience*. Convenience in a context of SST research refers to "the perceived time and effort required in finding and facilitating the use of a self-service technology" (Collier and Sherrell 2010, p. 492). To compensate customers for the absence of a service employee, companies will try to provide them with more convenience benefits, overcoming many traditional restrictions like location, scheduling or time availability. In many qualitative studies, the factor has said to be a driver for customer satisfaction as people mentioned they can have the service "when I want" and "where I want it" (Collier and Sherrell 2010). Convenience focuses on the whole transaction process, so the time and effort exercised before, during and after the transaction (Collier and Kimes, 2013). *Ease of use*. Ease of use is a determinant in the previously mentioned TAM and has been defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis 1989, p. 320). Considering an SST, ease of use focuses on the interface of a technology and should generally exceed the advantages of the personal service channel. Otherwise, it will be difficult to shift consumers away from the traditional channel over to the SST (Collier and Kimes, 2013).

Barriers

Perceived risk. Perceived risk can also be seen as a relevant factor and is defined as "consumer´s perception of the uncertainty and concomitant adverse consequences of buying a product or service" (Chen and Dubinsky 2003, p. 332). The factor risk was investigated as a determinant in the SST adoption process and it was found that the factor negatively influenced the intention of doing online banking (Curran and Meuter, 2005), the intention to

use e-services (Ruyter et al., 2001) as well as the readiness to use SSTs generally (Walker et al., 2002). For companies, especially the more specific factor security risk (e.g. modification of data or fraud) is of relevance, as many consumers have doubts about Internet security and might not use the SST because of that (Bélanger et al., 2002).

Complexity. Complexity is a factor already mentioned in Roger's Diffusion of Innovations Theory and "is the degree to which an innovation is difficult to understand and use" (Rogers 1989, p. 15). Complexity is a barrier since according to Rogers, the possibility of consumers adopting an innovation such an SST is higher when it's easier to use and communicated to others. That way, more people will start using it through for example word-of-mouth.

Need for human interaction. A consumer´s need for human interaction in the transaction of a service plays a role in the evaluation of the usage of self-service technologies (Collier and Kimes, 2013). Qualitative studies have found this construct to be one of the main reasons why consumers are not adopting an SST (Meuter et al. 2000, Meuter et al., 2003). Consumers who have a strong desire to interact with an employee personally won´t be interested in using an SST unless they are forced to. However, when consumers are overall satisfied and trust the SST being reliable and safe, the need to have a company's employee present should decrease (Collier and Kimes, 2013).

3. Methodology

This chapter introduces the research methodology used to explore the research question *"How can EDP encourage more customers to adopt to its self-service channels*?" For this study, focus groups, which can be described as a qualitative research method, were chosen. Focus group research is "a way of collecting qualitative data, which—essentially—involves engaging a small number of people in an informal group discussion (or discussions), 'focused' around a particular topic or set of issues" (Wilkinson 2004, p. 177). Krueger and Casey (2000) propose to conduct focus groups when the researcher wants to see and

understand differences in perspectives among groups of people, uncover factors that influence motivations and when the group is encouraged to develop ideas. Consequently, one of the reasons for choosing this approach was to give EDP customers the possibility to express themselves verbally about their viewpoints and motivations concerning self-service technologies and EDP Online. Further, the study will also focus on trying to uncover differences between users and nonusers and to let EDP customers generate new ideas and recommendations. Since there hasn't been any academic research yet examining EDP customers' motivations and attitudes towards self-service technologies and the platform EDP Online, this study can serve as a starting point for future quantitative measures for the company.

The interview guide (Appendix A & B) was developed, by using the information examined in the literature review, along with the study's research objectives. The focus group had several objectives. The first was to find underlying factors that motivate as well as prevent users and nonusers to use self-service technologies. The second objective was to explore user and nonuser's attitudes and opinions towards each of three factors that based on the literature, positively and negatively influence the adoption of EDP Online. The factors were predetermined together with the company to uncover further aspects, experiences and ideas that potentially impact the SST usage. The third objective was to find out nonuser and user's attitudes towards EDP Online and derive recommendations that would make them use EDP Online (nonusers) or more often (users). According to Breen (2006), the analysis of the focus-group data should include a summary of the most important themes, the most noteworthy quotes and unexpected findings. For this study the researcher followed a transcript based analysis. The transcripts were read and given codes so major themes could be identified (Krueger and Casey, 2000). Also, the data of both groups – users and nonusers – were analyzed and compared in an ongoing process. To have a useful overview, the results will be

presented in the order of the questions posed in the focus groups. There will be a summary of both group's responses to see how users and nonusers differ in their answers and paired with notable quotes from the transcript.

Sample. For this study, a total of two focus groups were arranged and customers of EDP were divided into two groups – users and nonusers of EDP Online. Both groups comprised of five people each. It was decided to only let digital customers participate in the research to better compare and understand why one customer group is using EDP Online and the other group is not, even though both generally are digitally active users. To make them digital customers, all participants needed to: have a smartphone, an email address registered at EDP, online banking, a minimum of five apps they use regularly, be on social media (at least Facebook) and pay their own bills. The recruitment of participants was carried out by asking friends whether they knew of other friends or family members that would be willing to participate. The following step comprised of the researcher contacting potential participants and asking whether the candidate met the above-mentioned requirements. The group of EDP Online users comprised of two females (26 and 37 years old), and three males (35, 37 and 61 years old) of which one was a basic user and the others all frequent users. The group of EDP Online nonusers comprised of three females (26, 30 and 52 years old) and two males (27 and 37 years old). The location of the study was in the researcher's apartment. The questions in the interview guide were pre-tested on two people that fit the profile of the sample to help revise the structure and see if the meanings of the questions come across clearly.

4. Results

The first objective of the study was to find underlying factors that motivate customers to use self-service technologies. Both groups were posed the questions "What are reasons you use self-service technologies?" and "Tell me about positive experiences you had when using SST's?" For users, reasons to use self-service technologies are among others ease of use,

convenience, practicality and speed: *"Speed of putting in the reading for example or sending out a help request instead of waiting on the phone and listening to a random symphony of Mozart (...) it's more efficient."* One user feels that self-service technologies are trust worthier and more objective concerning the information you get because a service employee might tell you something that is not exactly true. Another factor that was mentioned is the feeling of not depending on anyone and getting rid of people. Self-service technologies are perceived as intuitive and something that can be extremely useful because it seems easier to get something done through an app then calling someone. Costs were also mentioned in a way that it is easier to compare them with several companies and get something cheaper that way. Nonusers mentioned very similar factors, such as practicality, speed, ease of use and convenience. It was stated that one doesn't have to stick to opening hours of the businesses and it's easier to be up-to-date with any change that might occur. Also, when talking for example on the phone with a service employee, there might be a misunderstanding that causes problems as opposed to online, where it is possible to do things more precise. The factor that seemed very important to two nonusers was the feeling of being fully in control of a certain situation: *"(...) You have more control yourself...you don't need to make another person understand what you actually want if you can do it yourself and you understand the system well"*.

The next step was to find out users and nonusers attitudes and opinions towards the factors enjoyment, convenience and ease of use. To see what both groups insights were towards enjoyment, the following questions were asked: "Can you think of any self-service technologies that are fun to use?" "How important do you think it is for you to have elements in an SST that make the usage more fun?" and "What kind of positive feelings do you have when using SSTs?" Users mentioned a lot of different views and examples in the end, it was difficult however to get the conversation going, a reason for that might being that in the first

moment, people don't associate SSTs to be fun. For one user, using the Uber app makes him have fun in a way that he has all control over the process because it's always possible to find a driver for pick-up and see where the driver is going on the map. Also, Uber's interface has a cool look to it, a bit like a video game. Another user mentioned the Urban Outfitters app to be fun because it is possible to get rewards for doing different activities on the app like making wish lists or connecting personal Social Media accounts with the app. In return the customer gets a 5€ reward voucher for the next purchase. When asked the second question, it was also noted that EDP Online wasn't fun to use and what could make something more fun was a good design that made it easier to navigate or a cost cut: *"A deal that if you paid online more often or login more often you get a reduction in the bill…that would be fun."* Looking at nonusers, one mentioned just like a user of EDP Online before, that having control can be fun. The response to how important fun is when it comes to SSTs was that it is more important that SSTs are very user-friendly, intuitive, easy to understand and in combination with a monetary discount: *"Because actually we are saving costs for the company, so we should get something in return. If we get a slight discount, probably I would feel even better".* Positive feelings associated with SSTs were relaxation by avoiding stress, feeling more at ease, having more power and comfort.

Concerning the factor convenience, both groups were asked the question "How do you feel about SSTs saving you time and effort?" and whether they think completing transactions via EDP Online save (users) or would save (nonusers) them time and effort. All the users and nonusers agreed that using SSTs do save a person time and effort. Users also feel that completing transactions via EDP Online is convenient because you can for example just go on the website and don't get overestimated that way. One user however stopped engaging with EDP Online: *"I guess if I had any reason to go there more often I would probably go, so for instance if I knew I would save energy or if I did something that resolved in some kind of*

ecological benefit or something like that I think I would engage more, but that….". Some nonusers feel that using EDP Online would result in saving time and effort, since it for example says on the invoice that it's possible to report the reading in a few set of days and the consumption doesn't get overestimated that way. One user however wasn't sure because*: "For me, EDP is a company who provides the service and I pay, so I only have these two actions with them so I don't know".*

Ease of use was measured by asking the participants if they can generally get SSTs to work the way they want them to, if they find them easy to use and if it was easy to navigate through EDP Online. Both groups were on the same page that SSTs are easy to use because they usually are very intuitive and designed to be understood on one's own - if a problem occurs, it's usually due to technical problems. After checking out EDP Online more thoroughly, nonusers feel that EDP Online would be easy to use, also because the menu on the app gives a good overview. Users also agreed on that except one user, who was quite mad because she is handling many different contracts at a time on the app and can never tell them apart because each has a long contract number difficult to memorize.

Going back to the beginning, where factors that motivate customers to use self-service technologies were identified, this part focuses on finding factors that prevent customers to adapt to SSTs. Both groups were posed the questions "What are reasons for you not to use self-service technologies?" and "Tell me about negative experiences you had when using SST's?" For users, reasons not to use self-service technologies are among others privacy concerns, in a sense that it is important for them to trust the development side to be secure and personal data is not going to be shared with other companies. Users are also afraid that in an important moment while using an SST, the battery dies and they don't know what to do. Another issue that was mentioned throughout both groups was that there is not enough space on the phones and thus only space is kept for important apps. For nonusers, reasons not to use

SSTs are security concerns, not knowing how to use a specific SST, or not being sure about a topic and preferring to talk to someone who knows more and can be called. Following this line of thought, it was mentioned that a major problem is that there is a big gap between SST apps and the traditional channels: *"Some SST apps have a chat function (...), but most companies don't have it…It would be nice if companies would be able to close that gap."*

As already mentioned by both groups, privacy concerns seem to be an issue when it comes to self-service technologies. To find out more, questions on how participants feel about companies using their personal information, purchasing things online with a credit card and EDP having customers bank details were asked. Users of EDP Online all said they have no problem with using their credit card to purchase services online. Nonusers on the other hand all stated that it depends on the credibility of the company and there should be positive feedback online before a purchase from a website is considered. Also, both groups simultaneously dislike when companies ask for too much personal information, as one EDP Online user put it:" *I`m very much aware that data is the new gold, so I try to protect my personal information (...) especially with apps when they want to link with Facebook or Instagram, I find that a bit invasive."* One user mentioned that he dislikes it but it very much depends on the benefit he gets from it. Nonusers expressed no concerns towards giving EDP their bank details. Users didn't exactly give an opinion, however one user voiced his concern that EDP overestimates readings on purpose, to use the money of millions of customers to finance other projects until the money is returned. Another user mentioned that companies should start paying customers for their data because currently, companies are getting valuable data for free and it is unfair to consumers.

Regarding the factor complexity, users and nonusers were asked what kind of difficulties they come across when using SSTs and if they find or would find EDP Online confusing or difficult to use. Users responded that it can be very frustrating not being able to find what one

is looking for when using SSTs because a feature is not there or hidden. Besides, it was experienced that difficulties usually occur due to technical problems when something can't load or doesn't work the way it should. It was stated that the EDP Online website is a bit confusing because there are so many options, another disagreed: *"I wouldn't say confusing, I think it's just boring and I don't get anything out of it."* Concerning difficulties, it was mentioned by nonusers that SSTs can be square in a way only machines know how to be – sometimes there is a programming error or something needs to be put in an exact format, whereas a person would understand the problem right away. *"Some have a good design so they avoid you falling in those pain points but others not so much"*.

In literature, need for human interaction was said to be one of the main reasons why people are not adopting to SSTs, as they prefer human interaction to technology. Both groups were asked how they felt about using a SST when they could communicate with a person instead, if completing purchases or services with a service employee made the experience more enjoyable and if they had the option, what was the preferred choice – an employee or a SST. Nonusers felt indifferent or good about not having to talk to a service employee because it's nice to solve things on one's own, however sometimes it might be faster to talk to an employee. A purchase is only more enjoyable, when the service employee is really nice otherwise the technology is better. When they had to choose, all of them would prefer the technology *"unless maybe it is something I really don't understand"*. Compared with users, they also feel more independent when using an SST because often, service employees don't really know what they are talking about and say something different each time. One user stated that sometimes a service experience with an employee could be enjoyable when the person is nice and helpful. In the end, users concluded that whether they prefer the technology or human interaction depends on the service: *"With some things, I really value an opinion - so with EDP with very basic things I prefer technology, but of course there are some situations*

where it doesn't follow the standard, where actually someone really can help you to go around the traditional way".

Users and EDP Online. The objective here was to find out user's attitudes towards EDP Online and in the end, understand what they think should be improved or rather what would motivate them to use EDP Online more often. The first questions were posed to hear why user's login on EDP Online and why they use the app, the website or both. One user logs in on the EDP Online website because for him, it is helpful to give EDP the correct amount of energy consumed, as he finds it difficult in Portugal to get back money from companies. Other reasons mentioned were the convenience of getting push notifications on the app to put in a reading – *"I need to be alerted, that energy consumption exists"*. Or because the call center is impossible with long waiting hours and it's easier and faster on the app –EDP Online however still makes a lot of mistakes that need to be controlled regularly. Another user stated that he doesn't login at the moment: *"It wasn´t exciting, there wasn´t enough information for me to engage with, so I love numbers, I love lists and I love getting information and working with the data, I love Excel and all of this crap, and there was no way of exploring the data".* Difficulties that users come across when using EDP Online are among others that push notifications for the meter readings come infrequently and are thereby forgotten or that different contracts managed through the app at the same time can't be kept apart. What users say would make them motivate to login more often was to have for instance gamification elements included in the app and website: *"We would definitely use it more if they had these gamifications".* The emphasis here was to do it in way that can benefit the environment by saving energy and including others to participate. Another proposal that was important to users was to be able to see the energy usage on a daily basis to be able to compare days, months and years, to see how much energy but also money was spent each day and *"to be able to retrieve all that data in an excel or a format and then later be able to manipulate it in*

terms of how many days I used it and with what power." This way, when renting out an apartment through for example Airbnb, it is possible to tell which client spend how much during their stay. One user said he would also like to compare the energy consumption between his different contracts to see why one house is spending more than the others. What was also recommended repeatedly were personalized energy tips and comparing energy consumption between neighbors: *"What would be cool is like the same building, same walls, same windows and if my neighbour upstairs who has the same place is spending more, that´s how I know if he´s more efficient or not"*. It was also proposed to make the readings easier by just taking a picture and sending it off without putting in the numbers by hand. When showing everybody the app at the end and asking what they liked or disliked about it in terms of especially design or whatever came to their minds, users acted rather retained and said they liked the design, it was fine for a utility but they would like to get more out if it, have it tailored to their usage and that the app actually had more information than they thought when clicking on Comunidade.

Nonusers and EDP Online. Like with users, the objective was to find out nonuser's attitudes towards EDP Online and understand what would motivate them to use EDP Online. Following the initial SST trial decision mentioned in the literature review before, the first question before mentioning EDP Online at all was if they had heard about the platform before. In some cases, the problem is not that customers don't want to use a platform, it's more that they don't know about it – in this case however all participants have heard of it. The questions following the model were then posed: "*Do you have a positive or negative feeling towards EDP Online? Do you understand what you would have to do to use EDP Online? Would you use EDP Online in the future, now that you know more about it?"* All nonusers said they had positive feelings towards the platform, one nonuser said that she was indifferent and all would know what they had to do if they decided to use EDP Online. To the question

whether the participants would use the app in the future, one nonuser said yes, the others still weren't sure – a reason for them to use it in the future would be to not get overestimated for the readings. Asking for the reasons they are not using EDP Online, one of them was that there is not enough space on the phone for another app or the factor laziness. The main problem however mentioned was that there aren't any interactions with EDP and EDP Online doesn't need to be used or as one user put it: "*Personally, I would say I don't need a lot of interactions with EDP, I think the biggest interaction would be get the bills, review them and pay them. The bills I already got them by email, review them I check the pdf on the computer, pay them it's direct debit. Do the self-readings usually I don't need because EDP always keeps sending guys to our building."* What would motivate nonusers to use EDP Online is among others an online chat where even at night a request can be put and in case there isn't anybody online, a notification is sent as soon the request is answered. Energy efficiency tips would also be a usage reason and should be included straight in the app menu and should also be personalized*: "Like despite the fact if it's going to be useful or not, I think nowadays as a consumer if you can get some personal insights it's always fun…you just feel like it's for me. It's not necessary to be useful but it's like oh my god it's for me, let's check."* Getting discounts online or bonuses for being a "green user" and using less energy would also be a motivator. When showing everyone the app and asking what the like or disliked about it, nonusers said that it seems handy enough, they like the design and that it is simple in a clear way without too many images. What a nonuser disliked was that there is no possibility to schedule payments, as there are many people who have a fluctuant income and don't always want to pay at the same time like with direct debit.

5. Recommendations

In the following section, a list of possible recommendations are presented to tackle the emerging question of how EDP can encourage a more efficient customer adoption of their

self-service channel EDP Online. All recommendations are based on the proposed improvements by both users and nonusers and have been elaborated further.

Rewards System. Given that a large number of customers don't sign up to use EDP Online and others never login after activation, a good strategy to convert them into users could be to incentivize actions and give rewards. Especially nonusers highlighted that cost advantages would be a good reason to ultimately use the platform, even if the monetary benefit was very small. EDP could set up a points account for each customer and when the full number of percentage points are reached, the customer can decide if he or she gets a reduction on the energy bill or use the points for other offers from EDP. Through for example enabling and personalizing push notifications**,** connecting Social Media accounts with the app**,** reading about energy saving tips, sending information requests or complaints on the website, using the gamification feature, communicate readings, checking invoices or enabling direct debit online, users have a variety of possibilities to engage with and earn rewards. This way, EDP Online can easier reach their fixed goals set by the company in regard to share of operations which includes all things that can be done online by customers. Further, EDP can get more customers to actively participate on the platform, have less customers call or go to the shop and in the end, have a more satisfied customer.

Customization. Since the app represents a personal channel of communication to EDP customers, it would be important to give users the possibility to customize certain functions to their liking, such as push notifications. Customers should be able to tell what kind of push notifications they want to get, e.g. special offers, when the meter reader is coming to visit or when the customer needs to do the reading. For the last two examples it would be beneficial to the customer that he or she can determine how many days before the notification should come, to set a reminder and to be able to get an email as a reminder as well. Additionally there should be the possibility to get more information on energy tips which can be

customized, based on different determinants, among others how big the apartment is, which appliances are being used or which windows are built in. This way, customers can more easily save energy and at the same time receive messages form EDP that help build a personal connection with each customer.

Monitor Usage. What became evident throughout both focus groups and had been underestimated before the study was the factor control. Users and nonusers repeatedly mentioned the importance of feeling in control of a situation when using self-service technologies, also noting that it can be fun to have control. It can therefore be seen as a driving force behind adopting SSTs. Both groups mentioned that being able to track the energy usage on a daily basis to have more control would be a very important matter to them. It would be useful to have a chart where the daily energy consumption is visualized in an appealing design together with the possibility to compare not only days, but also months, years or past seasons with each other. As a result, customers will have more knowledge on when exactly they have higher energy consumption and also make it easier to draw conclusions on the reasons why. What was further mentioned and could be included in the chart was to have the possibility to select a time frame and get an approximation of how much money was spent on energy those specific days. This would be especially useful for customers who rent out apartments or houses for shorter periods, to know which tenants spent how much money on energy. Users also frequently mentioned that they would like to have a feature to compare their energy usage with their neighbor who has the same apartment size, walls and building to see how efficient or inefficient they are.

Gamification. Users strongly recommended having gamification elements on EDP's self-service platform, stating it would be very fun and a reason to go online more often. It was emphasized however, that it would only make sense to do it in an "ecofriendly way". The fundamental idea behind this concept is to save energy in a way that is fun, engaging and

carried out competitively with other customers or friends. Groups could be formed and customers could compete on the amount of energy they are saving by for example using energy-efficient appliances, insulated windows, switching off standbys or using smart meters. Efficiency is therefore measured with decreasing energy consumption. This concept pushes customers to be more active online and has the advantageous side effect that customers save money along the way. Badges or rewards for reducing the carbon footprint will be given to those who saved the most energy in the group per month or cycle.

Online Chat. An online chat on the website and the app with real EDP service employees would be an important step towards closing the yawning gap between EDP's online and traditional channels. Users and nonusers stated that they generally prefer an SST to talking to a companies' employee, especially when the request is not very complex. The chat therefore could help to stop many people calling EDP via phone or going to the shop and help engaging customers online instead. Important factors mentioned by participants of the focus group like convenience or speed would be addressed, since it is customary with online chats to instantly get a reply from an employee without having to wait a long time like on the phone.

6. Limitations and future research

There are some limitations to this study that need to be taken into consideration. As the research was of qualitative nature many of the findings are not generalizable to all EDP customers. The small sample size is a limitation with all together ten participants used for the focus group. The study however represents a starting point for EDP to conduct quantitative research to receive results that are more generalizable throughout different EDP customer groups – this work only included digital customers who already were accustomed to using self-service technologies and all originated from the Lisbon area. Before enforcing any of the recommendations, EDP could also address and perform qualitative studies with a wider scope of customers from other cities or more remote places in Portugal as well as customers that

don't regularly use the Internet, smartphones, SSTs or apps. This way EDP could get a better and broader understanding of the needs of different groups and include those findings into future measurements for the company. Also, other factors such as control, trust, technology anxiety or demographic variables among others could be tested and examined in further research.

7. BIBLIOGRAPHY

Belanger, F., Hiller & J., Smith, W. (2002): Trustworthiness in electronic commerce: the role of privacy, security, and site attributes. Journal of Strategic Information Systems, Vol. 11, pp. 245–270

Bitner , M.J.: (2007). Self-Service Technologies: Innovation and Execution. IEEE/INFORMS. NSF Workshop on Service Science. August 2007

Bitner, M.J.& Brown, S.W.; Meuter, M.L. (2000). Technology Infusion in Service Encounters. Journal of the Academy of Marketing Science, Vol. 1, pp.138-149.

Breen, R.L (2006): A Practical Guide to Focus-Group Research, Journal of Geography in Higher Education, 30:3, 463-475, DOI: 10.1080/03098260600927575

Bitner, M.J.& Ostrom, A.L.; Meuter, M.L. (2002). Implementing successful self-service technologies. Academy of Management Executive, Vol. 16 (4), pp.96-108.

Capgemini Consulting (2013). So near so far - Why utilities need to re-energize their digital customer experience. pp. 2-3

Carter, L.; Bélanger, F. (2005). The utilization of e-government services: citizen trust, innovation and acceptance factors. Information Systems Journal, Vol. 15 (1), pp.5-25.

Collier, J. E., & Kimes, S. E. (2013). Only if it is convenient: Understanding how convenience influences self-service technology evaluation. Journal of Service Research, Vol. 16(1)

Collier, j. & Sherrell (2010): Examining the influence of control and convenience in a self-service setting, Vol. (38), pp.490-509

Curran, J.M.& Meuter, M.L. (2005). Self-service technology adoption: comparing three technologies. Journal of Services Marketing, Vol. 19 (2), pp.103-113.

Curran, J.M.& Meuter, M.L.; Surprenant, C.F. (2003). Intentions to Use Self-Service Technologies: A Confluence of Multiple Attitudes. Journal of Service Research, Vol. 5 (3), pp.209-224.

Dabholkar, P.A. & Bagozzi, R.P. (2002). An Attitudinal Model of Technology-Based Self-Service: Moderating Effects of Consumer Traits and Situational Factors. Journal of the Academy of Marketing Science, Vol. 30 (3), pp.184-201.

Dabholkar, P. A. & Bagozzi, R. P. (2000). Discursive psychology: An alternative conceptual foundation to means–end chain theory. Psychol. Mark., Vol. 17, pp. 35–586.

Davis, F.D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, Vol. 13 (3), pp.318-340.

EDP - Energias de Portugal, SA (2016). Company profile. pp. 2-38

Elliott, M.T.& Speck, P.S. (2005). Factors That Affect Attitude Toward a Retail Web Site. Journal of Marketing Theory & Practice, Vol. 13 (1), pp.40-51.

Hilton, T. & Hughes, T. (2013). Co-production and self-service. The application if service-dominant logic, Vol. 29 (7-8), pp. 861-881

Mc Kinsey & Company (2014). Accelerating the digitalization of business processes. pp. 1-4

Meuter, M.L.& Bitner, M.J.; Ostrom, A.L.; Brown, S.W. (2005). Choosing Among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies. Journal of Marketing, Vol. 69 (2), pp.61-83.

Meuter, M.L.& Ostrom, A.L. & Roundtree, R.I.& Bitner, M.J. (2000). Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters. Journal of Marketing, Vol. 64 (3), pp.50-64

Perea y Monsuwé, T.& Dellaert, B.G.C.& Ruyter, K. de (2004). What drives consumers to shop online? A Literature review. International Journal of Service Industry Management, Vol. 15 (1), pp.102-121.

Richard A. Krueger & Mary Anne Casey (2000). Focus Groups. A Practical Guide for Applied Research (3rd Edition). Thousand Oaks

Rogers, E.M. (1983). Diffusion of Innovations, (3rd ed). New York: Free Press.

Ruyter, K. de &Wetzels, M. & Kleijnen, M. (2001). Customer adoption of e-service: an experimental study. International Journal of Service Industry Management, Vol. 12 (2), pp.184-207.

Scherer, A. & Wangenheim, F. &Wünderlich, N. (2015): The Value of Self-Service: Long-Term Effects of Technology-Based Self-Service Usage on Customer Retention. Vol. 39 (1), pp. 177-200

Toffler, A. (1980). Die dritte Welle: Die Zukunftschance.The third wave: The classic study of tomorrow. Munich: Goldmann.

Weijters, B.& Schillewaert, N.& Rangarajan, D.& Falk, T. (2005). Customers' Usage of Self Service Technology in a Retail Setting. Working Paper, Vlerick Leuven Gent Management School, Vlerick Leven Gent Working Paper Series 2005/19.

Wilkinson S. (2004). Focus group research. In Silverman D. (Ed.), Qualitative research: Theory, method, and practice (pp. 177–199). Thousand Oaks, CA: Sage.